ABSTRACT OF THE DISCLOSURE

An offline frame alignment circuit can simultaneously achieve frame alignment for a large number of TDM streams (i.e. channels) within a required amount of time (e.g. 15 ms for ESF). The Multi-channel Frame Aligner (MCFA) uses a high speed system clock independent of the individual line clocks to perform frame alignment for each of the channels. The MCFA includes a framer memory to store the alignment states of all possible framing bit candidates for all channels. The MCFA polls each channel to determine if frame alignment is requested, and if so, if data from the associated channel is available. A state machine in the MCFA compares the received data with the expected framing bits and adjusts the stored alignment states accordingly. All framing bit candidates are processed in parallel leading to fast alignment times. The MCFA architecture can be adapted for any of a plurality of channels and framing formats merely by adjusting the speed of the MCFA system clock and capacity and arrangement of data states in the framer memory.